

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (CURRENTLY AMENDED) A method of displaying a multi-mode stereoscopic image, comprising the steps of:

aligning a display unit with a variable color barrier, the display unit having first pixels and second pixels displaying mixed image signals, each of the first pixels having at least one sub-pixel cell coded with a first color used for creating a left-eye picture and at least one other sub-pixel cell each coded with a color different from the first color and used for creating a right-eye picture and each of the second pixels having at least one sub-pixel cell coded with the first color used for creating a left-eye ~~the right-eye~~ picture and at least one other sub-pixel cell each coded with the color different from the first color and used for creating a right-eye ~~the left-eye~~ picture, the variable color barrier unit having first and second variable filters adjacent to and alternated with each other, wherein each of said first and second variable filters is overlapped with a portion of said first pixels and a portion of said second pixels such that all sub-pixel cells of each of the first pixels are aligned to a left-eye of an observer through at least one first variable filter and aligned to a right-eye of the observer through at least one second variable filter and all sub-pixel cells of each of the second pixels are aligned to the right-eye of the observer through at

least one first variable filter and aligned to the left-eye of the observer through
at least one second variable filter;

displaying video signals obtained by photographing an object at different
angles on the display unit;

generating a mode signal for selecting between a stereoscopic mode and a
plane mode;

applying a first voltage to the first variable filters such that the first
variable filters transmit a light of the first color and wavelength of light toward
~~an observer~~ while shutting off light of other colors and wavelengths, and
simultaneously applying a second voltage different from the first voltage to the
second variable filters, such that the second variable filters transmit the light of
said other colors and wavelengths ~~toward the observer~~ while shutting off the
light of said first color and wavelength, so that a stereoscopic picture is viewed
~~in~~ when said stereoscopic mode is selected; and

applying a third voltage different from both the first and second voltages
to both of said first and second variable filters such that both the first and
second variable filters ~~to~~ transmit light of all colors and wavelengths from both
of said first and second pixels toward the observer in a mixed state so that a
plane picture is viewed ~~in~~ when said plane mode is selected;

~~whereby the observer recognizes a stereoscopic picture formed of the
separate left eye picture and the right eye picture when the first and second~~

~~voltages are applied to the first and second variable filters, and the observer recognizes a plane picture when the third voltage is applied to the first and second variable filters.~~

2. (CURRENTLY AMENDED) A multi-mode stereoscopic image displaying apparatus, comprising:

an image signal converter for combining video signals obtained by photographing an object at different angles, and for creating mixed image signals;

a display device having first pixels and second pixels for displaying the mixed image signals received from the image signal converter, each of the first pixels having at least one sub-pixel cell coded with a first color used for creating a left-eye picture and at least one other sub-pixel cell each coded with a color different from the first color and used for creating a right-eye picture and each of the second pixels having at least one sub-pixel cell coded with the first color used for creating ~~a left~~ the right-eye picture and at least one other sub-pixel cell each coded with the color different from the first color and used for creating ~~a right~~ the left-eye picture;

a variable color barrier unit having first and second variable filters adjacent to and alternated with each other, wherein each of said first and second variable filters is overlapped with a portion of said first pixels and a

portion of said second pixels such that all sub-pixel cells of each of the first pixels are aligned to a left-eye of an observer through at least one first variable filter and aligned to a right-eye of the observer through at least one second variable filter and all sub-pixel cells of each of the second pixels are aligned to the right-eye of the observer through at least one first variable filter and aligned to the left-eye of the observer through at least one second variable filter; and

a mode conversion controller for generating a mode signal for selecting between a stereoscopic mode and a plane mode;

a voltage source for generating first, second and third voltages each voltage being different the other voltages; and

a switch connected between said variable color barrier unit and said voltage source to apply said first voltage to the first variable filters such that the first variable filters transmit a light of the first color ~~and wavelength of light toward the observer~~ while shutting off light of other colors ~~and wavelengths~~, and to simultaneously apply said second voltage to said second variable filters such that the second variable filters transmit light of said other colors ~~and wavelengths toward an observer~~ while shutting off light of said first color ~~and wavelength~~ when said switch is in the stereoscopic mode, and to apply said third voltage to said both of said first and second variable filters of said variable color barrier unit such that both the first and second variable filters transmit light of all colors when said switch is in the plane mode;

~~whereby the observer recognizes a stereoscopic picture formed of the separate left eye picture and the right eye picture when the first and second voltages are applied to the first and second variable filters, and the observer recognizes a plane picture when the third voltage is applied to the first and second variable filters.~~

3. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image display apparatus according to claim 2, wherein the variable color barrier unit is arranged at a front side of the display device.

4. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image display apparatus according to claim 2, wherein the variable color barrier unit is arranged at a rear side of the display device.

5. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image display apparatus according to claim 2, wherein the variable color barrier unit is a liquid crystal display panel adopting any one of an electrically controlled birefringence (ECB) mode and a guest-host (GH) mode.

6. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image display apparatus according to claim 2, wherein the mode conversion controller

receives a user instruction to select between the stereoscopic mode and the plane.

7. (CURRENTLY AMENDED) A multi-mode stereoscopic image displaying apparatus, comprising:

an image signal converter for combining video signals obtained by photographing an object at different angles, and for creating mixed image signals;

a display device having first and second pixels for displaying the mixed image signals received from the image signal converter, each of the first pixels having at least one sub-pixel cell coded with a first color used for creating a left-eye picture and at least one other sub-pixel cell each coded with a color different from the first color and used for creating a right-eye picture and each of the second pixels having at least one sub-pixel cell coded with the first color used for creating a left-eye picture and at least one other sub-pixel cell each coded with the color different from the first color and used for creating a right-eye picture;

a color barrier having first and second color filters adjacent to and alternated with each other, wherein each of said first and second color filters is overlapped with a portion of said first pixels and a portion of said second pixels such that all sub-pixel cells of each of the first pixels are aligned to a left-eye of

an observer through at least one first color filter and aligned to a right-eye of the observer through at least one second color filter and all sub-pixel cells each of the second pixels are aligned to the right-eye of the observer through at least one first color filter and aligned to the left-eye of the observer through at least one second color filter and wherein the first color filter transmits a light of the first color while shutting off light of the color different from the first color and the second color filter transmits the light of the color different from the first color while shutting off the light of the first color~~the left-eye picture is incident to the left eye and the right eye picture is incident to the right eye of an observer;~~

a light-scattering device arranged between the display device and the color barrier,

wherein the light scattering device transmits an incident light from the display device to the color barrier without scatter~~as it is in a separated state in response to a first voltage, thereby creating a stereoscopic picture formed of the separate left eye picture and the right eye picture to be observed~~ when the light scattering device is in a stereoscopic mode such that the first color from each first pixel and the color different from the first color from each second pixel reaches the left eye of the observer and the first color from each second pixel and the color different from the first color from each first pixel reaches the right eye of the observer, and

wherein the light scattering device scatters ~~said incident~~ the light from the display device to the color barrier in response to a second voltage ~~other than~~ different from said first voltage, ~~thereby creating a plane picture to be observed~~ when the light scattering device is in a plane mode such that the first color and the color other than the first color from both the first and second pixels reach both the left and right eyes of the observer.

8. (ORIGINAL) The multi-mode stereoscopic image display apparatus according to claim 7, wherein the light-scattering device includes a polymer-dispersed liquid crystal (PDLC).

9. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image display apparatus according to claim 7, further comprising:

a mode conversion controller for generating a mode signal for selecting between the stereoscopic mode and the plane mode in accordance with the user instruction;

a voltage source for generating said first and second voltages; and

a switch connected between the light scattering device and the voltage source to apply said first and second voltages to the light scattering device in response to the mode signal.

10. (PREVIOUSLY PRESENTED) The method of displaying a multi-mode stereoscopic image according to claim 1, wherein each of said first and second variable filters is overlapped with a half portion of said first pixels and a half portion of said second pixels.

11. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein each of said first and second variable filters is overlapped with a half portion of said first pixels and a half portion of said second pixels.

12. (PREVIOUSLY PRESENTED) The multi-mode stereoscopic image displaying apparatus according to claim 7, wherein each of said first and second color filters is overlapped with a half portion of said first pixels and a half portion of said second pixels.

13. (NEW) The method of displaying a multi-mode stereoscopic image according to claim 1, wherein said first and second variable filters behave as complementary color filters when in said stereoscopic mode.

14. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein said first and second variable filters behave as complementary color filters when in said stereoscopic mode.

15. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 7, wherein said first and second color filters are complementary color filters.

16. (NEW) The method of displaying a multi-mode stereoscopic image according to claim 1, wherein all of the first and second variable filters simultaneously operate to transmit the light of the first color and the light of the color other than the first color, respectively.

17. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein all of the first and second variable filters simultaneously operate to transmit the light of the first color and the light of the color other than the first color, respectively.

18. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein the display device comprises:

a liquid crystal panel configured to generate the first and second pixels information;

a first polarizer attached to a surface of the liquid crystal panel of the display device away from the variable color barrier; and

a second polarizer attached to a surface of the liquid crystal panel of the display device towards the variable color barrier.

19. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein the variable color barrier comprises:

a liquid crystal panel with a plurality of liquid crystal cells, wherein each liquid crystal cell behaves as either the first variable filter or the second variable filter;

a first polarizer attached to a surface of the liquid crystal panel of the variable color barrier towards the display device; and

a second polarizer attached to a surface of the liquid crystal panel of the variable color barrier away from the display device.

20. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 2, wherein the display device comprises:

a liquid crystal panel configured to generate the first and second pixels information,

a first polarizer attached to a surface of the liquid crystal panel of the display device away from the variable color barrier, and

a second polarizer attached to a surface of the liquid crystal panel of the display device towards the variable color barrier, and
wherein the variable color barrier comprises

a liquid crystal panel with a plurality of liquid crystal cells, wherein each liquid crystal cell behaves as either the first variable filter or the second variable filter,

a first polarizer attached to a surface of the liquid crystal panel of the variable color barrier towards the display device, and

a second polarizer attached to a surface of the liquid crystal panel of the variable color barrier away from the display device.

21. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 20, wherein the liquid crystal panel of the display device and the liquid crystal panel of the variable color barrier are separated by a predetermined distance.

22. (NEW) The multi-mode stereoscopic image displaying apparatus according to claim 20, wherein the second polarizer of the display device and the first polarizer of the variable color barrier are a single polarizer.